Collaborative Large Whale Survey 2015 (CLaWS)

End-of-Leg 4 Report: 27 September – 22 October 2015

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Project Synopsis

The Collaborative Large Whale Survey 2015 (CLaWS) is a joint field effort by Southwest Fisheries Science Center (SWFSC) and Alaska Fisheries Science Center (AFSC). The 4-month survey is devoted to the assessment of several large whale species off the U.S. and Canadian west coast between northern California and Kodiak, Alaska. Major components of this effort include: (1) the first range-wide assessment of gray whales that summer south of the Aleutian Islands, (2) a dedicated visual line-transect and acoustics survey for right whales in the Gulf of Alaska, and (3) sampling (photographic and biopsy) of blue and fin whales. The work is being supported by SWFSC, AFSC, NOAA Fisheries Office of Science & Technology and Office of Protected Resources, NOAA Fisheries' Alaska Regional Office and the U.S. Marine Mammal Commission. The survey started on 9 July from San Diego amid news coverage and excitement about the large whale research and NOAA Ship *Reuben Lasker* undertaking its first scientific project. The 106- day survey will have five legs (tracklines are shown in Figure 1) and is scheduled to end in San Diego on 9 November 2015. Contact Dave.Weller@noaa.gov for additional information.

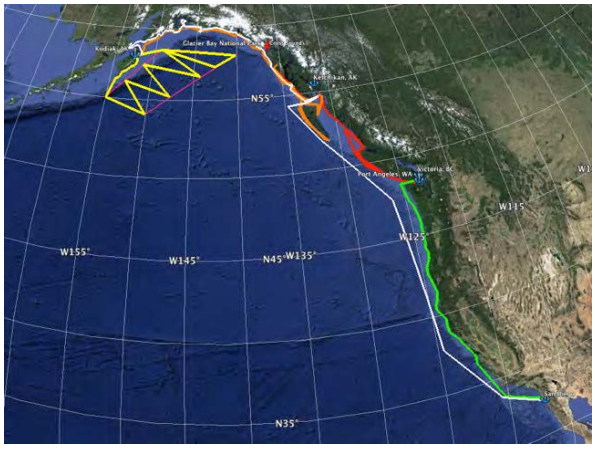

Figure 1. *Survey track lines planned for the 2015Collaborative Large Whale Survey. Legend: Leg 1 = white; Leg 2 = yellow; Leg 3 = orange; Leg 4 = red; Leg 5 = green.*

Leg 4 Overview

From September 27th – October 22nd, the NOAA Ship *Reuben Lasker* worked in Canadian waters between Dixon Entrance and the Strait of Juan de Fuca. The primary goal for this 25 day leg was to survey the coastal waters off mainland British Columbia and Vancouver Island for gray whales, and when sighted, to take photo-identification pictures, and to collect biopsy samples. Additionally, the scientific team recorded data for all cetaceans sighted and attempted to collect photo-identification pictures for species with existing photo-identification catalogs.

Methods

Visual survey methods generally followed the line-transect survey protocols described by Kinzey *et al.* (2000). Weather permitting, a team of three marine mammal observers searched for cetaceans from the flying bridge during daylight hours (approximately 0800 to 1800 PST). Six (6) marine mammal observers worked in 2-hour rotations, staffing three stations on the flying bridge for 40 minutes: a port side 25x150-binocular station, a center-line data recorder position, and a starboard 25x150-binocular station. At the beginning of each day, search effort started on the trackline. Survey tracklines were drawn to follow the shoreline of the study area as closely as possible. When the ship could not get near the shore in areas that were likely to be gray whale habitat (Darling *et al.* 1998) and weather permitted, the ship's rigid-hulled inflatable boat (RHIB) was launched to conduct a shoreline survey.

When gray whales were sighted and weather permitted, the RHIB was launched to attempt photo-identification and biopsy sampling of individual whales. If conditions permitted, attempts were made to photograph of other species.

Biopsy samples were collected with a compound crossbow and 7 x 40 mm stainless steel tips with 3 internal barbs. Photographs were taken when whales were sampled to provide documentation of the individual sampled.

Photographs were taken with Canon digital cameras and a 100-400 mm or 200 mm lens. Passes to photograph whales were conducted to document both the left and right lateral sides of the animals; the primary objective was to get the right side to facilitate matching individuals to existing catalogs.

Search effort and Cetacean sightings

Survey effort data were collected along 449 nm of coastal tracklines during Leg 4 and 132 sightings of cetaceans were recorded (Figure 2 and Tables1 and 2).

***Figure 2**. Survey track of the NOAA Ship* Reuben Lasker*, 27 September – 22 October 2015*

***Table 1**. Search effort by day. Survey distance is when the marine mammal observer team was "on effort" using 25x binoculars (Figure 3). Inclement weather days and RHIB sampling days are not included.*

Date (mmddyy)	Time Start/ Time End (PST, 24h clock)	Latitude	Longitude	Survey Distance (nmi)	Average Beaufort
92915	809	N51:55.26	W129:59.48	109	2.9
	1907	N50:15.17	W128:30.23		
93015	756	N48:56.78	W125:43.90	19.9	3
	956	N48:46.16	W125:18.38		
100115	1751	N48:39.18	W125:09.21	4.9	2.3
	1846	N48:43.23	W125:13.49		
100215	759	N49:19.57	W126:18.42	3.7	2.7
	1101	N49:20.83	W126:23.77		
100415	814	N49:21.44	W126:22.93	35.9	1.2
	1850	N48:59.56	W125:50.79		
100515	801	N48:30.34	W124:29.79	7.7	2.7
	923	N48:33.37	W124:40.47		
100615	815	N49:32.89	W126:41.09	42.4	3.3
	1758	N50:00.90	W127:46.77		
100715	807	N50:50.88	W128:32.03	18.7	3.9
	1422	N50:53.15	W128:14.57		
101215	812	N51:29.59	W127:51.42	14	2.4
	1152	N51:29.09	W127:49.30		
101315	1104	N51:27.15	W127:48.58	34.4	3.1
	1552	N50:59.71	W127:59.26		
101415	836	N53:04.64	W129:51.83	57	2.8
	1555	N53:53.03	W130:50.44		
101515	856	N54:36.68	W130:59.97	32.6	4.1
	1814	N53:58.80	W130:50.75		
101615	834	N52:18.29	W129:05.96	36.5	2.8
	1300	N51:48.72	W128:26.80		
102015	826	N48:59.40	W125:55.78	28.5	3.6
	1121	N48:45.78	W125:17.72		
102115	1311	N48:30.46	W124:29.08	4.1	1
	1336	N48:31.43	W124:35.07		

(a)

(b)

Figure 3. *The flying bridge is the topmost level of the ship under the canopy (a), whichis where visual observation effort is conducted (b).*

Table 2*. The number of cetacean sightings recorded during Leg 4 by species.*

Species	Sightings
Lagenorhynchus obliquidens	2
Lissodelphis borealis	1
Orcinus orca	3
Phocoena phocoena	7
Phocoenoides dalli	8
Eschrichtius robustus	14
Balaenoptera spp.	6
Balaenoptera physalus	7
Megaptera novaeangliae	65
Unidentified dolphin	2
Unidentified small whale	1
Unidentified large whale	16
TOTAL	132

The RHIB was launched on 15 of the 25 days at sea (Figure 3). Gray whales were encountered, photographed and sampled on 11 of the 15 launches, and humpback whales were encountered and photographed on an additional two launches. On two launches, the RHIB was used to survey nearshore shallow, complex coastlines that could not be surveyed from the ship, and no gray whales were encountered. Details of the sampling conducted from the RHIB are presented in the below: Biopsy Sampling and Photo-identification.

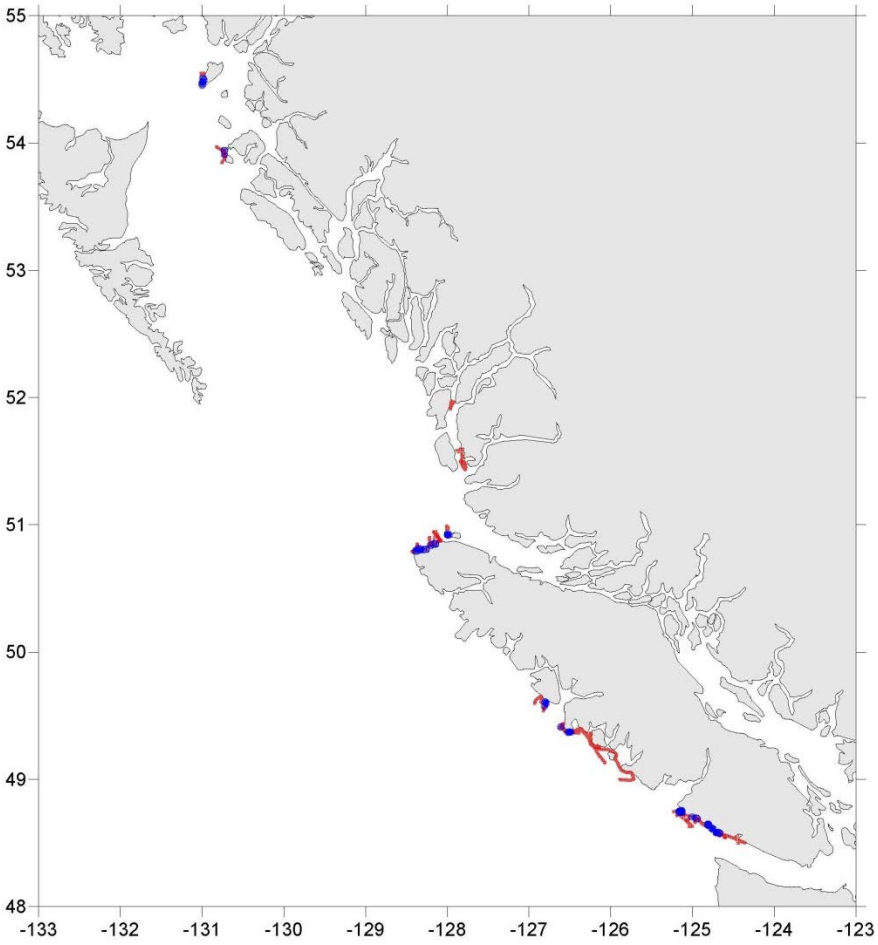

Figure 3. *Tracks of the RHIB (red) and location of gray whales with biopsy samples collected (blue).*

Photo-identification and Biopsy Sampling

Seventy-one (71) gray whale biopsy samples (Figure 3) were collected during Leg 4 (Table 3).

Table 3. *The date and sighting number of whales with photo-identification pictures taken and biopsy samples collected by species: (a) gray whales, (b) humpback whales, and (c) killer whales. Note: no biopsy attempts or samples were made on humpback or killer whales.*

(a)

Date	Sight	Photo-ids: unique per sighting	Photo-ids: new individuals	Biopsy samples	Biopsy samples: unique individuals
9/30/2015	1214	23	23	17	15
10/3/2015	1219	5	5	5	5
10/5/2015	1229	18	17	14	12
10/6/2015	1233	4	4	3	3
10/13/2015	1246	5	5	4	3
10/14/2015	1267	3	3	2	2
10/15/2015	1270	5	5	6	4
10/17/2015	1288	13	12	6	6
10/18/2015	1289	9	3	6	4
10/20/2015	1292	18	9	8	4
10/21/2015	1293	1	1		
Total		**104**	**87**	**71**	**58**

(b)

Date	Sight	Photo-ids: unique per sighting	Photo-ids: new individuals
10/8/2015	1236	6	6
10/10/2015	1237	7	7
10/12/2015	1238	2	2
Total		**15**	**15**

(c)

Date	Sight	Photo-ids: unique per sighting	Photo-ids: new individuals
10/8/2015	1287	3	3
Total		**3**	**3**

Acknowledgements

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Leg 2 Scientific party: *Front, L to R: S. Martínez. A. Schulman-Janiger, K. Forney, A. Amerson*
Back, L to R: B. Chen, P. Fiedler and S. Chivers.

References

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